

NOMINAL STRUCTURES IN FONGBE*

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The nominal structures of Fongbe are analysed in a theory of functional categories. It is shown that preposition phrases, relative clauses and some adjectives must appear in positions adjoined to functional category phrases. Moreover every argument of the head noun is distributed according to a strict thematic hierarchy. Finally, the paper presents a problem of word order concerning the Fongbe determiner and number marker and suggests two possible resolutions to this problem.

Cet article analyse les structures nominales du fongbe dans le cadre d'une théorie des catégories fonctionnelles. Il révèle que la distribution des arguments de la tête nominale est contrainte par une hiérarchie thématique stricte et que les syntagmes prépositionnels, les phrases relatives et certains adjectifs sont engendrés par adjonction aux projections fonctionnelles. Enfin, il propose deux solutions alternatives au problème posé par le déterminant et le marqueur de nombre pour ce qui est de l'ordre des mots.

0. INTRODUCTION

Fongbe is a Kwa language of the Niger-Congo Group spoken in the south of Benin and Togo. This paper describes the nominal phrase in Fongbe (cf. Akoha (1980) for a description in another framework) and presents an analysis of these structures in a theory of functional categories.

We will show that the Fongbe phrase is strikingly similar to that of English, modulo a reversal of directionality and the presence of an overt number marker in the functional category system. The directionality of head/complement structures in Fongbe permits an insight into the distribution of the modifiers of the nominal phrase which is less visible in English. Our analysis further argues that *all* of the positions where arguments appear in the nominal phrase are constrained by a thematic hierarchy.

First we give a brief overview of the Fongbe nominal phrase and then we proceed to a more detailed discussion of the syntactic realization of the nominal argument structure. Finally we discuss a problem concerning the relative ordering of determiners and plural markers and we present two possible solutions to this conundrum.

1. THE NOUN AND ITS ARGUMENTS

This section will describe the syntactic realization of the argument structure of the Fongbe nominal phrase. The main part of the discussion compares and contrasts two different ways in which the arguments¹ of nouns are manifested in this language. We describe the thematic content of these arguments and point out various syntactic/semantic constraints on the head-argument relation. These concern the possibility of iterating argument positions, constraints on the realization of affected arguments, inalienable possession and partitive interpretations, as well as the particular distribution of pronouns.

First we offer some preliminary remarks on the general patterns of the Fongbe nominal phrase.

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¹ Although the status of the notion 'Possessor' as a thematic role has not been firmly established in the literature, we will assume throughout this paper that it is an argument, like any other. We do not, however, argue for this point and we leave the question open.

1.1 AN OVERVIEW OF NOMINAL STRUCTURES

In Fongbe, most nominal heads are morphologically complex. For example, nouns are often derived from verbs (a process signalled by the reduplication of the verbal form), in which case they refer to the action and/or the result of the action expressed by the verb. Examples are given below².

- 1a. **dè** → **dìdè** b. **càn** → **cìcàn**
 'draw' 'drawing, sketch' 'grind' 'grinding, grounds'

Other nouns may include a nominal classifier prefix **à-** or **ó-**³:

- 2a. **à-són** **à-kplà** b. **(ó-)gán** **(ó-)yè**
 'crab' 'wound' 'chief' 'shadow'

The prefix **ó-** is generally optional while the prefix **à-** normally must appear⁴.

Fongbe has a definite (deictic) determiner (DET) and a plural marker (NBR), both of which follow the noun in the surface order: **N⁰ DET NBR**. These two elements are subject to a constraint that prevents the realization of two adjacent identical determiners or plural markers⁵.

The arguments of the Fongbe noun may be realized in the syntax in two different ways. As illustrated in (3), an argument with the Case marker **tɔn** follows the head noun, but precedes the determiner and plural marker. An argument with the Case marker **sín** precedes the noun (as shown in (4))⁶.

² Our transcriptions of Fongbe data use the orthography established by the government of Benin. The symbols are the same as IPA's except for the following: **h** replaces γ , **c** replaces \check{c} , **j** replaces \check{j} , **ny** replaces $\check{\eta}$, and nasal vowels are followed by **n**, e.g., **an** replaces \check{a} . Fongbe has two phonological tones, High and Low (represented by acute and grave on the vowel respectively), and two derived tones, a Falling tone (represented by a circumflex) which is the result of High tone spreading on a Low tone and a Mid tone (unmarked) which is the realization of the Falling tone in certain contexts.

³ In fact, these prefixes seem to be remnants of a richer nominal class system. In Ewé, a closely related language, there are still four such prefixes (see Bole-Richard, 1983). For details on the morphology of Fongbe, see Brousseau (1990).

⁴ The prefix **à-** is only dropped when an argument is realized without a Case marker (i.e., the bare complements of nouns shown in note 6. below); in this context, both **ó-** and **à-** must drop.

⁵ This constraint has been noted before by Lefebvre (1985), who gives the following examples:

- i. * **súnù** [dèé dū dà s] s ii. * **súnù** [dèé dū dà lè] lè
 man who eat snake DET DET man who eat snake NBR NBR
 'The man who ate the snake.' 'Men who ate snakes.'

To account for these examples, Lumsden (1989) proposes a constraint on the insertion of functional categories into syntactic representations. According to the 'Not Again! Constraint', it is not possible to insert a functional category 'X' immediately after the insertion of the functional category 'X'.

There is further support for this idea in that the constraint is not limited to the distribution of determiners and number markers. As the following example shows, two instances of the Case marker **tɔn** cannot appear adjacent to one another.

- iii. **dìdè** [xwé Báyí tɔn] tɔn lè
 sketch house Bayi CASE CASE NBR
 'Bayi's house's sketches'

⁶ There is also a third form where the argument appears as a bare complement which must immediately precede the noun:

- i. NP N : vɪ **dìdè** lè
 child sketch NBR
 'child-sketches'

Since the bare complement form is radically different than the forms which involve Case markers, we will not discuss it here. This structure is as much morphological as syntactic: it is a type of head 'incorporation'. Indeed,

3. N [NP tɔn]: ɖiɖè Kɔkú tɔn lɛ
 sketch Koku CASE NBR
 'Koku's sketches'
4. [NP sín] N: Kɔkú sín ɖiɖè lɛ
 Koku CASE sketch NBR
 'sketches of Koku'

Modifiers and adjuncts to the nominal phrase always follow the noun, as shown below.

- 5a. Kɔkú sín ɖiɖè ɖàgbé ɔ lɛ
 Koku CASE sketch good DET NBR
 'the good sketches of Koku'
- b. ɖiɖè ɖàgbé Kɔkú tɔn ɔ lɛ
 sketch good Koku CASE DET NBR
 '(the) Koku's good sketches'
- c. ɖiɖè Kɔkú tɔn [nú Báyí] [kpóɖó àlɔ̀dówèmámɛ] lɛ
 sketch Koku CASE for Bayi with signature NBR
 'Koku's sketches for Bayi with a signature'

Modifiers and adjuncts will be discussed below in Section 4.

We now turn to a discussion of various differences between structures involving arguments with tɔn and those involving sín arguments.

1.2 ARGUMENTS WITH SÍN VERSUS ARGUMENTS WITH TɔN

Any thematic relationship between the argument and the head noun may be expressed in either the structure with tɔn or the structure with sín. In (6) below, the argument may be interpreted as the Theme, the Agent or the Possessor whether it appears with sín or with tɔn. In (7), the argument can be understood as the Source, the Goal or the Agent, again with either Case marker.

6. 'pictures showing/made by/belonging to Koku'

- a. fɔ̀tɔ̀ Kɔkú tɔn lɛ b. Kɔkú sín fɔ̀tɔ̀ lɛ
 picture Koku CASE NBR Koku CASE picture NBR

this structure shares properties with nominal compounds. First, it receives a 'type', generic interpretation. Second, the incorporation is possible only if the head is a derived nominal i.e., a reduplication or a noun including a prefix:

- ii. xɔ́ ɖiɖè lɛ iii. xɔ́ yè lɛ iv. *xɔ́ fɔ̀tɔ̀ lɛ
 hut drawing # hut shadow # hut picture #
 'hut-drawings' 'hut-shadows' 'hut-pictures'

Third, as we already mentioned, the incorporation forces the prefix à- to drop. Finally, when the incorporated complement ends with a High tone, the head-noun must also bear a High tone (even in contexts where High tone spreading is impossible):

- v. glètà àgbànkàn → glètà-gbànkàn
 farm souvenir 'farm-souvenir'
- vi. tɔ̀kpó àgbànkàn → tɔ̀kpó-gbán'kàn
 island souvenir 'island-souvenir'

7. 'messages from/to/made by the stranger'

- a. **yòvó** **ó** **sín** **wìwén** **lè** b. **wìwén** **yòvó** **ó** **tón** **lè**
 stranger DET CASE message NBR message stranger DET CASE NBR

On the other hand, if more than one argument is present in the phrase, the two structures do show a difference. Iteration of arguments is possible only with **sín**, as we see in (8) and (9).

- 8a. [**Kòkú sín**] [**Aristote sín**] **ḍìḍè** **lè**
 Koku CASE Aristotle CASE sketch NBR
 'Koku's sketches of Aristotle'
- b. * **ḍìḍè** [**Aristote tòn**] [**Kòkú tòn**] **lè**
 sketch Aristotle CASE Koku CASE NBR
- 9a. **yòvó** **ó** **sín** **Kanada sín** **wìwén** **lè**
 stranger DET CASE Canada CASE message NBR
 'the stranger's messages from Canada'
- b. * **wìwén** **Kanada tòn** **yòvó** **ó** **tòn** **lè**
 message Canada CASE stranger DET CASE NBR

Moreover, the order of the iterated arguments with **sín** is subject to a strict thematic hierarchy⁷. The Possessor precedes the Agent. The Agent precedes the Goal which precedes the Source, and these precede the Theme which precedes the head noun. Thus, the following examples are not ambiguous.

- 10a. [**Kòkú sín**] [**Rembrandt sín**] [**Aristote sín**] **ḍìḍè** **lè**
 Koku CASE Rembrandt CASE Aristotle CASE sketch NBR
 'Koku's (POSS) sketches of Aristotle (TH) by Rembrandt (AG)'
- b. [**yòvó ó sín**] [**Kanada sín**] [**gbèdídí sín**] **wìwén** **lè**
 stranger DET CASE Canada CASE greeting CASE message NBR
 'the stranger's (AG/GOAL) messages of greeting (TH) from Canada (SOURCE)'

It is interesting to note that when one of these thematic roles is expressed with the **tòn** structure, it must always be one which is higher in the thematic hierarchy than those of the same nominal phrase which are expressed with **sín**. Thus in (11a) the argument in the **tòn** structure (i.e., **Kòkú**) must be understood as the Possessor. In (11b), it is **Aristote** who is the Possessor, even though our knowledge of the world might suggest otherwise. That is, (11b) means the same as (12).

- 11a. [**Rembrandt sín**] [**Aristote sín**] **ḍìḍè** [**Kòkú tòn**] **lè**
 Rembrandt CASE Aristotle CASE sketch Koku CASE NBR
 'Koku's (POSS) sketches of Aristotle (TH) by Rembrandt (AG)'
- b. [**Rembrandt sín**] [**Kòkú sín**] **ḍìḍè** [**Aristote tòn**] **lè**
 Rembrandt CASE Koku CASE sketch Aristotle CASE NBR
 'Aristotle's (POSS) sketches of Koku (TH) by Rembrandt (AG)'

⁷ The same hierarchy has been observed before for the arguments of verbs and nouns in various languages (cf. Jackendoff (1972), Milner (1978), etc.).

12. [Aristote sín] [Rembrandt sín] [Kòkú sín] òìqè ìè
 Aristotle CASE Rembrandt CASE Koku CASE sketch NBR
 ‘Aristotle’s (POSS) sketches of Koku (TH) by Rembrandt (AG)’

This fact will be discussed further in Section 3.

Other constraints differentiate the *sín* and the *tɔ̀n* structures. First, when the argument is a Theme, it can appear with the *tɔ̀n* Case marker only if it is an ‘affected’ Theme (the pertinence of ‘affectedness’ has been noted in English noun phrases, as well, cf. Anderson (1979)). Non-affected Themes must appear with *sín*. Since the arguments of the nouns derived from the verbs *mɔ̀n* ‘deny’ and *bà* ‘search’ are unaffected, they must be realized with *sín*, as shown below.

13. ‘the denial of the truth’

- a. *nùgbó* ɔ́ *sín* *mímɔ̀n* ɔ́ b. * *mímɔ̀n* *nùgbó* ɔ́ *tɔ̀n* ɔ́
 truth DET CASE denial DET denial truth DET CASE DET

14. ‘Bayi’s search for truth’

- a. [*nùgbó* ɔ́ *sín* *bìbà*] (*Báyí tɔ̀n*) ɔ́
 truth DET CASE search Bayi CASE DET
 b. * (*Báyí sín*) [*bìbà* *nùgbó* ɔ́ *tɔ̀n*] ɔ́
 Bayi CASE search truth DET CASE DET

Similarly, when the nominal phrase has a partitive sense, only the *sín* structure is allowed, as we see in the following examples.

15. ‘the bottle of beer’

- a. [*càkpálô sín*] *gò* ɔ́ b. * *gò* [*càkpálô tɔ̀n*] ɔ́
 corn-beer CASE bottle DET bottle corn-beer CASE DET

16. ‘the book of songs’

- a. [*hàn sín*] *wèmá* ɔ́ b. * *wèmá* [*hàn tɔ̀n*] ɔ́
 song CASE book DET book song CASE DET

On the other hand, when the argument is inalienably possessed by the head noun, it has to appear with *tɔ̀n*. With head nouns that refer to parts of the body, the structure with *sín* is judged as odd, as we see in (17). If one insists on using *sín*, the phrase is interpreted as though the inalienable body part has been ‘alienated’; that is, it has been detached from the body, as in (18b).

17. ‘The child’s arm has a wound.’

- a. *Àwà* [*vì* ɔ́ *tɔ̀n*] ɔ́ *dó* *àkpà*.
 arm child DET CASE DET have wound
 b. ?* [*vì* ɔ́ *sín*] *àwà* ɔ́ *dó* *àkpà*
 child DET CASE arm DET have wound

2. THE STRUCTURE OF THE NOMINAL PHRASE

The positions to the left of the noun in a Fongbe nominal phrase (i.e., where arguments are realized with the Case marker *sin*) are clearly distinct in important ways from the position to the right of the noun (i.e., where arguments are realized with the Case marker *tɔn*). As it happens, other natural languages have similar contrasting positions in nominal phrases (eg. English, as we will see below). An adequate theory of syntax should provide an account of these differences. One pertinent theory has been the focus of attention in some recent GB studies of nominal phrases. The suggestion that the determiner phrase dominates the noun phrase (proposed in a different framework in Brame (1982) and adapted into the GB framework in Abney (1987)) is commonly known as the 'DP-hypothesis'. In this section, we briefly review two of the analyses which have been formulated using this hypothesis. We will then illustrate the structure which is necessary to account for the Fongbe data from this perspective.

We adopt the X-bar theory of Chomsky (1981), as modified in Fukui and Speas (1986)⁸. That is, functional categories (eg. determiners, complementizers, etc.) project only two levels of structure (a complement position and a specifier position) but lexical categories (eg. nouns, verbs, etc.) may project an unlimited number of levels, sufficient to accommodate the number of arguments and modifiers which elaborate the semantic interpretation of the phrase.

We will also use the 'KP-hypothesis' (cf. Fillmore (1968), Lamontagne and Travis (1987), Lumsden (1987), etc.) where Case is represented in the syntax in a functional category which dominates all the rest of the nominal phrase. This assumption is clearly compatible with (and related to) the DP-hypothesis, but it is not essential to the account presented here.

2.1. THE DP-HYPOTHESIS IN HUNGARIAN AND ENGLISH

Szabolcsi (1987) argues that the Agreement marker in Hungarian NPs assigns Nominative Case to the possessor argument⁹. In Hungarian NPs, when there is a possessor argument, the matrix noun must bear an inflectional affix which reflects the person and number of that argument.

- | | | | | | | | |
|------|---------------|--------------|-----------------|----|------------|-----------|-----------------|
| 23a. | az | én | kalap-om | b. | a | te | kalap-od |
| | the | I:NOM | hat-1SG | | the | you:NOM | hat-2SG |
| | 'my hat' | | | | 'your hat' | | |
| c. | a | Péter | kalap-ja | | | | |
| | the | Peter:NOM | hat-3SG | | | | |
| | 'Peter's hat' | | | | | | |

Szabolcsi points out that Possessor/Noun Agreement in NPs seems to be quite parallel to Subject/Verb Agreement in clauses. It would seem natural to suppose that the two constructions involve parallel structures. What then, is the structure of Subject/Verb Agreement constructions?

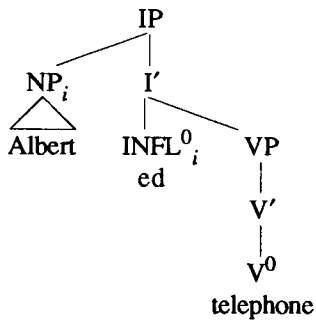
In the GB framework, the analysis of these structures involves a functional category – INFLection, the head of the clausal phrase. The pertinent structure is illustrated below. Agreement is the 'feature sharing' relation between INFL and the category in the specifier of the INFL phrase (i.e., the subject of the clause). It is the Agreement node in INFL which marks nominative Case on the subject NP. The verb phrase is the complement of the INFL phrase and

⁸ Note however, that we depart from the Fukui and Speas notation in that we will label the maximal projection of a lexical category 'X' as XP (= X' in F and S), for the convenience of the reader.

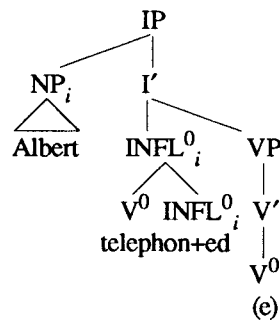
⁹ A similar proposal is made for Turkish in Komfilt (1984).

the verb is associated with INFL at S-structure through head-movement (cf. either affix-hopping or verb movement, cf. Chomsky (1981) for extensive discussion).

24. **D-structure**

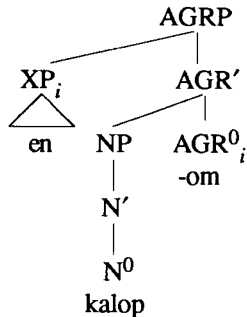


S-structure



Szabolcsi argues that there is a nominal parallel to this clausal structure. The Agreement marker in Hungarian noun phrases is the head of a functional category phrase – a phrase which dominates the lexical category (i.e., the NP), just as the INFL phrase dominates the VP. The 'DP-hypothesis' structure below might represent the Hungarian example in (23a). The noun phrase appears as the complement of the functional category. The noun undergoes head-movement and adjoins to the affix. At S-structure, the possessor phrase appears in the specifier position of the functional category. It is the Agreement between the possessor and the head of the functional category which permits Case marking of the possessor¹⁰.

25.



A theory which provides for a parallel between clausal structures and nominal structures is desirable not only because Subject/Verb Agreement and Possessor/Noun Agreement are parallel in Hungarian, but also for the many other similarities between clausal and nominal phrases which have often been observed in traditional grammars and which have been discussed in generative theories since Lees (1960). Both structures allow active and passive realizations of similar argument structures (e.g., the well known patterns of pairs like destroy/destruction). Both structures appear in argument positions, etc., etc. Of course, this is a departure from the 'standard' theory of noun phrase structure (where the determiner phrase appears in the specifier position of the NP). But given the analysis of clauses as illustrated above, this departure does not make the grammar more complex, it does account for the facts and it does make the correct

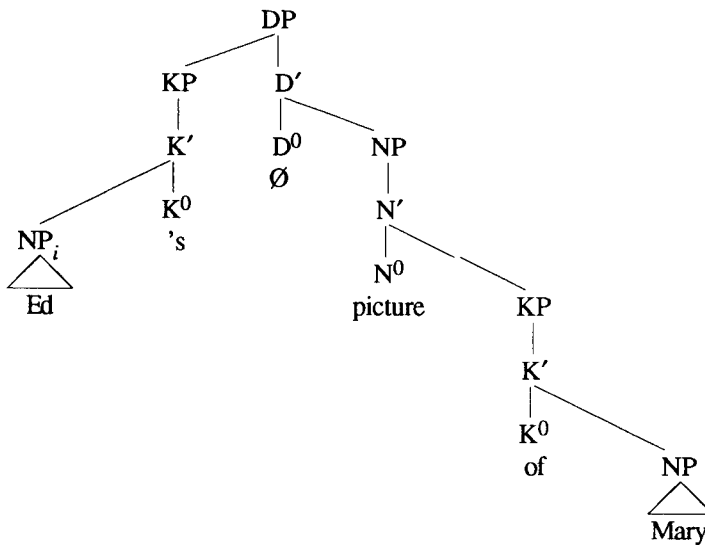
¹⁰ This is not precisely the structure proposed by Szabolcsi, but it does follow her structure in spirit and presents all the information pertinent to the discussion here. In Szabolcsi's account the agreement affix and the noun are considered to be a complex predicate, headed by the affix. Note in passing that Szabolcsi extends the parallel between clausal and nominal phrases by analysing the article *az* as a kind of noun phrase complementizer.

generalization in an elegant way. Moreover, this kind of analysis is useful in other languages besides Hungarian.

Abney (1987) provides arguments in favour of the ‘DP Hypothesis’ in the analysis of English nominal phrases. He suggests that in the construction known as the ‘Anglo-Saxon genitive’ (i.e., the construction with ‘s), there is a phonologically null functional category which heads the nominal phrase. The noun phrase is the complement of this functional category and the argument of the noun phrase appears in the specifier position of the (null) functional category phrase where it is realized with genitive Case.

The S-structure of the English nominal phrase is given below, including the Anglo-Saxon genitive and a complement in the post-nominal genitive position. We suppose that the ‘s marker and the ‘dummy’ preposition *of* are Case-markers (cf. Chomsky (1986b) and Abney (1987)). Each is the head of a functional category phrase, KP. Presumably the null functional category projection which Abney calls a DP (determiner phrase) is the English parallel to Szabolcsi’s AgrP.

26. Ed’s picture of Mary



Like Szabolcsi’s account of Hungarian, Abney’s analysis of English nominal phrases provides for the parallel between nominal structures and sentential structures. Furthermore, since the specifier position of a functional category can only contain one element (cf. Fukui and Speas (1986)), the account provides for the lack of iteration of arguments in this position¹¹.

- 27a. * yesterday’s Anne-Marie’s theory
- b. * the barbarian’s the city’s destruction

¹¹ One may ask why the structure cannot include more than one functional category, thus providing more than one specifier position for arguments of the noun phrase. We believe that there is a parameter of variation here: some languages permit nominal phrases with more than one functional projection, while others only permit a single functional category. English is one of the latter.

Since various arguments can appear in this position, it seems that the specifier position of the null functional category projection is not a theta-position.

28a. Anne-Marie's destruction of the theory

- b. the theory's destruction
- c. yesterday's theory
- d. Claire's theory

The specifier position of the Anglo-Saxon genitive construction may be further contrasted with the argument positions in nominal phrases which follow the noun (i.e., the positions of *of*-insertion). Non-affected arguments are only allowed in the position following the noun (cf. Anderson (1979)).

29a. a theory of syntax / * syntax's theory

- b. need of money / * money's need

Similarly, partitives must follow the noun.

30a. the bottle of beer / * the beer's bottle

- b. the book of poems / * the poem's book

These contrasts may follow from a difference in the Case which can be realized in these positions. Chomsky (1986b) has argued that an argument with inherent Case (in contrast with structural Case) can only be realized in a position which is governed by the theta-role assigner for that argument. Since the theta-role of nominal arguments is assigned by the noun, inherent Case must be realized within NP. Structural Case may be realized inside or outside NP (i.e., in the specifier position of the functional category)¹². Thus if the non-affected arguments and the partitive arguments of NPs must be assigned an inherent Case, their distribution has an immediate account under the DP-hypothesis. Presumably affected arguments may be assigned either inherent or structural Case and thus may be realized in either position.

There is a further (weaker) contrast between these positions. Inalienable possession is most easily expressed in the position to the left of the noun.

31a. Bill's arm was broken. / * The arm of Bill was broken.

- b. Ed's heart stopped for three minutes. / *The heart of Ed stopped for three minutes.

Again this may be accounted for in terms of Case: inalienable possession is realized with structural Case while alienable possession may be expressed in either Case.

The reader will have noted that this contrast and the others illustrated above are strikingly similar to the contrasts which we have observed in the nominal phrases of Fongbe. These parallel facts cry out for a parallel account.

¹² Note that, contrary to Chomsky (1986b), we suppose that the Case of the argument in the construction with 's is assigned by the functional category, rather than by the noun.

There is one contrast which we have not accounted for. Why is it that the argument which appears with **tɔn** must be higher on the thematic hierarchy than any of the arguments with **sín** which appear in the same nominal phrase? In fact this contrast seems to be pertinent in other languages. In French, for example, the Theme argument in a nominal phrase may be expressed as a clitic which appears in a functional projection (cf. (33a)). The same theta role and various others (eg. Agent, etc.) may appear as an argument with an inserted preposition (i.e., **de** 'of', cf. (33b)). But if another theta role is realized with **de**, the Theme cannot appear as a clitic (cf. (33c)).

- 33a. son portrait
'his (THEME) portrait'
- b. le portrait d'Aristote de Rembrandt
'the portrait of Aristotle by Rembrandt'
- c. * son portrait de Rembrandt not: 'his (THEME) portrait by Rembrandt'
ok: 'his (POSS) portrait by Rembrandt'

Whatever accounts for this restriction in French is probably also pertinent in Fongbe¹⁴.

Since the argument which appears with **tɔn** is constrained by the same thematic hierarchy which applies to arguments with **sín**, the simplest hypothesis is that both positions are constrained in the same way. Since the thematic hierarchy determines the ordering of the arguments with **sín** at D-structure, presumably it does the same for the argument with **tɔn**. This would imply that the **tɔn** argument is not a derived position. Rather, it is assigned a theta-role at D-structure.

Aside from the reversal of directionality, the structure which we propose for the Fongbe nominal phrase is very parallel to that which has been proposed for English. In the next section we will see that this difference in directionality reveals some interesting details about the distribution of adjuncts and relative clauses.

3. THE DISTRIBUTION OF MODIFIERS

In this section, we will discuss the distribution of modifiers (i.e., adjectives, benefactive and locative PPs, and restrictive relative clauses) in the Fongbe nominal phrase. We will describe the positions of these elements in the elaborated structure of nominal phrases which was presented in (32) above.

3.1 THE DISTRIBUTION OF ADJECTIVES

Adjectives in the nominal phrase always appear to the right of the head of the phrase (i.e., N⁰). In fact there are two positions possible: adjectives can appear either immediately to the right of the noun, as in (34), or to the right of the **tɔn** phrase, as in (35).

- 34a. **Kɔ́kú sín ɖìdè ɖàgbé ɔ̀ lè**
Koku CASE sketch good DET NBR
'the good [sketches of Koku]'
- b. **ɖìdè ɖàgbé Kɔ́kú tɔ́n ɔ̀ lè**
sketch good Koku CASE DET NBR
'(the) Koku's [good sketches]'

¹⁴ This hierarchy in French is discussed in Aoun (1985) and Zubizarreta (1979).

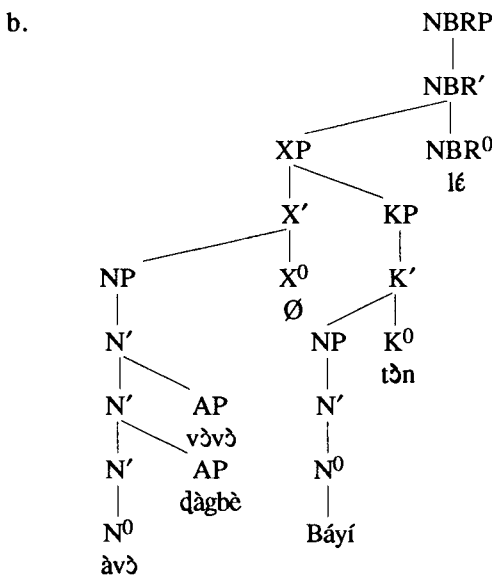
35. ḍiḍè Kòkú tòn ḍàgbé s lɛ
 sketch Koku CASE good DET NBR
 'the good [sketches by Koku]'

As the translations of these examples indicate, the respective position of the adjective and the tòn phrase reflect a difference in interpretation. That is, an adjective to the right of the tòn phrase has scope over that phrase. The adjective or tòn phrase which has the highest position in the tree is the one that restricts the preceding (already modified) noun. This can be seen in the following examples, where two adjectives and a possessor tòn phrase modify the noun àvɔ̀ ('loin-cloth').

- 36a. àvɔ̀ ḍàgbè vɔ̀vɔ̀ Báýí tòn lɛ
 loin-cloth good red Bayi CASE NBR
 'of the good, red loin-cloths, those of Bayi'
- b. Àvɔ̀ ḍàgbè Báýí tòn vɔ̀vɔ̀ lɛ.
 loin-cloth good Bayi CASE red NBR
 'Of Bayi's good loin-clothes, those that are red.'
- c. Àvɔ̀ vɔ̀vɔ̀ Báýí tòn ḍàgbè lɛ.
 loin-cloth red Bayi CASE good NBR
 'Of Bayi's red loin-cloths, those that are good.'
- d. Àvɔ̀ Báýí tòn vɔ̀vɔ̀ ḍàgbè lɛ.
 loin-cloth Bayi CASE red good NBR
 'Of Bayi's loin-cloths, those that are red and good.'

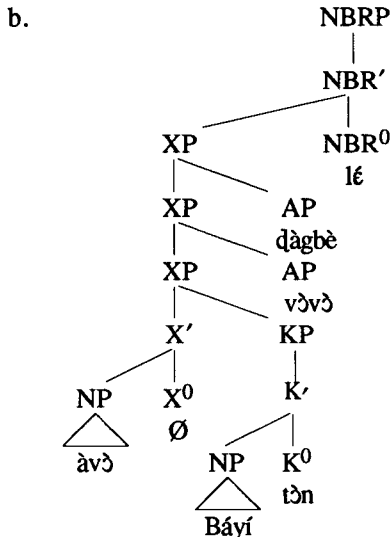
The S-structure of (36a), where the adjectives are within the lexical projection of the noun is shown in (37), where each adjective is dominated by a N' node. We suppose that, just as theta-assignment is directional, the semantic relation of 'modification' is directional and, moreover, this directionality is subject to parametric variation. The particular directionality of modification in Fongbe requires that the modifier must follow the phrase which is modified.

- 37a. àvɔ̀ ḍàgbè vɔ̀vɔ̀ Báýí tòn lɛ
 'Bayi's good red loin-cloths'



Given the structure we have proposed to account for the *tɔn* construction, in examples like (36d), the adjectives to the right of *tɔn* must be outside of NP. Since, functional projections contain only one complement and one specifier position (cf. Fukui and Speas (1986)), the adjectives must be adjoined to the functional phrase (i.e., XP). The S-structure of (36d) is illustrated below.

- 38a. **àvɔ́ Báyí tɔ́n vɔ́vɔ́ ðàgbè lé**
 'Bayi's good red loin-cloths'



Since positions created by adjunction are in theory unlimited (although there are, of course, pragmatic limits imposed by memory, etc.), this structure predicts that any number of adjectives may appear after the *tɔn* phrase. This is borne out by the facts of Fongbe (cf. (36d)). PPs and CPs can also be adjoined to the projection which dominates the *tɔn* phrase, as we will see below.

3.2 THE DISTRIBUTION OF PP AND CP MODIFIERS

In (39), we present various examples of PPs: locatives, benefactives and comitatives. The forms in (40) show adjunct CPs (that is, restrictive relative clauses)¹⁵. In contrast with adjective phrases, PPs and CPs cannot appear between the noun and its argument with *tɔn*. Since they must follow this argument, we suppose that they are adjoined to the maximal projection of the functional category which dominates the argument. Here again, since these are adjoined structures, they are not limited in number.

- 39a. **ḍìḍè Kòkú tɔ́n [ḍò távò ɔ́ jí] [ḍò wèmá ɔ́ kpá] lé**
 sketch Koku CASE at table DET on at book DET beside NBR
 'Koku's sketches on the table beside the book'

¹⁵ Non-restrictive relative clauses have a different structure which is clearly appositional:

- i. **Báyí, é wɪf àsɔ́n é ɔ́.**
 Báyí 3 SING catch crab 3 SING DET
 'Bayi, who caught a crab.'

- b. **ɖìɖè Kɔ́kú tɔ́n [ɖò távò ɔ jí] [nú Báýí] lé**
 sketch Koku CASE at table DET on for Bayi NBR
 ‘Koku’s sketches on the table for Bayi’
- c. **ɖìɖè Kɔ́kú tɔ́n [nú Báýí] [kpódó àlɔ́dówèmámɛ] lé**
 sketch Koku CASE for Bayi with signature NBR
 ‘Koku’s sketches for Bayi with a signature’
- 40a. **àsɔ́n Kɔ́kú tɔ́n [nú Báýí] [ɖèé ɖò távò jí] ɔ lé**
 crab Koku CASE for Bayi that be at table on DET NBR
 ‘(the) Koku’s crabs for Bayi that are on the table’
- b. **àsɔ́n Kɔ́kú tɔ́n [ɖò dò mɛ] [ɖɛ̀è Báýí wlí] lé**
 crab Koku CASE at hole in that Bayi catch NBR
 ‘Koku’s crabs in a hole that Bayi caught’

PPs and CPs can also be adjoined to the number phrase, as we show below. The examples in (41a) and (41b) parallel the examples in (39b) and (40b) respectively, but with the PP and CP adjoined to NBRP instead of XP.

- 41a. **ɖìɖè Kɔ́kú tɔ́n lé [ɖò távò ɔ jí] [nú Báýí]**
 sketch Koku CASE NBR at table DET on for Bayi
 ‘Koku’s sketches on the table for Bayi’
- b. **àsɔ́n Kɔ́kú tɔ́n lé [ɖò dò mɛ] [ɖɛ̀è Báýí wlí]**
 crab Koku CASE NBR at hole in that Bayi catch
 ‘Koku’s crabs in a hole that Bayi caught’

On the other hand, adjunction to NP seems to be ruled out. First, as we see in (42), adjunction to NP when the XP containing the *tɔ́n* phrase is also present leads to an ungrammatical structure.

- 42a. * **àsɔ́n [ɖèé ɖò távò jí] Kɔ́kú tɔ́n lé**
 crab that be at table on Koku CASE NBR
 ‘Koku’s crabs that are on the table’
- b. * **àsɔ́n [nú Báýí] Kɔ́kú tɔ́n lé**
 crab for Bayi Koku CASE NBR
 ‘Koku’s crabs for Bayi’

Second, when this XP is absent – i.e., when the NBRP immediately dominates the NP – the structure is not ungrammatical; but it does have a peculiar interpretation. The string Noun-CP or Noun-PP is interpreted as a kind of compound. These examples refer to a ‘type’ of the normal reference of the noun, as if the structure has been concatenated in the lexicon to form a single word in the syntax.

- 43a. **àsɔ́n [ɖò távò jí] lé**
 crab at table on NBR
 ‘the table-top-crabs’ (type of crab) / * ‘The crabs on the table’

- b. àsón [nú Báyí] lɛ
 crab for Bayi NBR
 'the for-Bayi-crabs' (type of crab) / * 'The crabs for Bayi'

It seems that it is only possible to adjoin to a functional projection, not to a lexical projection (like NP). The forms of (42) above may be ruled out because the adjunction structure inhibits the assignment of a theta role to the argument with tɔn (cf. the Domain Adjacency Condition of Travis (1984); the adjunction structure intervenes in the between the noun and the argument with tɔn, preventing theta-assignment). The forms of (43) contain no such argument but still the PP and CP are interpreted not as adjuncts to a syntactic projection, but rather as part of a single lexical entry. This fact remains unexplained.

3.3 ON THE ADJACENCY OF THE DETERMINER AND THE NUMBER MARKER

There is an interesting question with regard to the determiner and number marker of Fongbe. If adjunction applies to functional phrases, then adjunction to DP should be possible (in addition to adjunction to XP and NBRP). But this possibility is not confirmed in the data. In fact, no element can separate the determiner and the plural marker.

44. ɖiɖe Kɔkú tɔn ɔ nú Báyí lɛ
 sketch Koku CASE DET for Bayi NBR
 '(the) Koku's sketch for the Bayis (i.e., the Bayi family)'
 * '(the) Koku's sketches for Bayi'

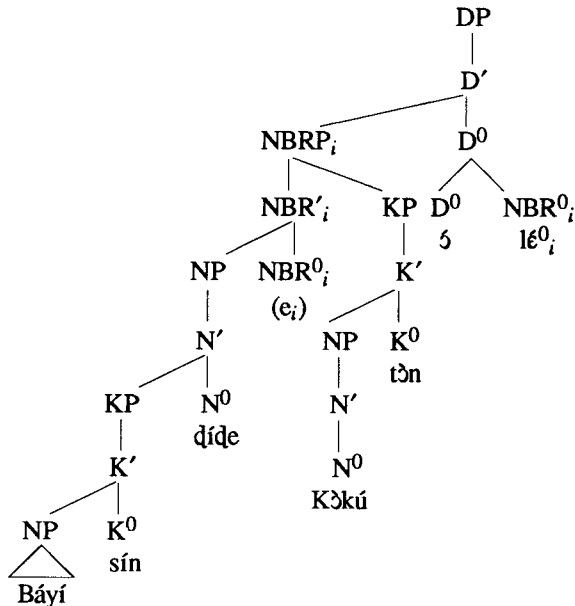
In (44), the plural marker lɛ must be inside the PP; the NP Báyí must be interpreted as plural. Either the PP is adjoined to NBRP as in the preceding examples (this NBRP being headed by a phonetically null plural marker), or the PP is adjoined to DP (and there is no NBRP in this particular nominal phrase).

How can one account for the fact that it is impossible to place an element between the determiner and the number marker? Ritter (1989) argues that there is a universal hierarchy for the realization of determiners and number markers in a nominal phrase. This hierarchy requires that in all languages determiners dominate plural markers, at least at D-structure. Thus, the Fongbe data would seem to present a counter-example to this generalization. These two anomalies in our data – the necessary adjacency of the determiner and the plural marker and the reversal of the expected hierarchy of functional categories – may be related. Following a suggestion of Elizabeth Ritter (personal communication), we could account for both if we supposed that at D-structure, the plural marker is in fact the head of XP (i.e., the phrase where the arguments with tɔn appear) and that it is an affix which must undergo head movement to adjoin to the determiner head. The pertinent S-structure is represented in 45b. below.

If this were the pertinent structure, then the adjunction to XP discussed in the text above (e.g., examples (39)-(40)) would actually be adjunction to NBRP. Similarly, the adjunction to NBRP in the text above (e.g., the examples in (41)) would actually be adjunction to DP.

- 45a. Báyí sín ɖiɖe Kɔkú tɔn ɔ lɛ
 Bayi CASE sketch Koku CASE DET NBR
 '(the) Koku's sketches of Bayi'

b.



This structure would seem to offer an elegant solution to the problem. Unfortunately, there is a further problem which is subsequent to this account. Since the appearance of an argument with *tɔ́n* implies a position where adjuncts can be adjoined between the noun and the determiner (i.e., adjoined to XP), the notion that the plural marker is the head of XP predicts that the appearance of this marker would be enough to provide a position for adjunction. Thus we should be able to find examples which have no arguments realized with *tɔ́n*, but which do have a plural marker and which do allow adjuncts to appear between the head noun and this plural marker. But this is not possible. As we observed in Section 4, such constructions have an odd interpretation, as though the head noun and the PP have been composed as a single word in the lexicon.

- 46a. * *àsɔ́n dɔ́ távò ji lé*
 crab at table on NBR
 not: 'the crabs on the table'
 ok: 'the table-top-crabs', a type of crab

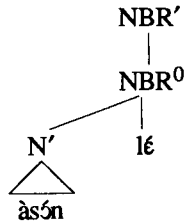
- b. * *díde nú Báyí lé*
 sketch for Bayi NBR
 not: 'the sketches for Bayi'
 ok: 'the for-Bayi-sketches', a type of sketch

How can we account for the fact that adjunction to a phrase headed by NBR is possible if and only if this phrase dominates a *tɔ́n* phrase in SPEC position? If we adopt the constraints on D-structure proposed by Fukui and Speas (1986), there is a possible solution to this dilemma. We may assume the 'Functional Projection Theorem' of Fukui and Speas (where 'Kase' refers both to Case and other functional features):

47. A functional head projects to the X'' level iff there is Kase to be discharged to its spec position. Otherwise, it projects only to X'. (= (24), p. 154)

The basic structure of the nominal phrase in (46a) would then be as illustrated below.

48.

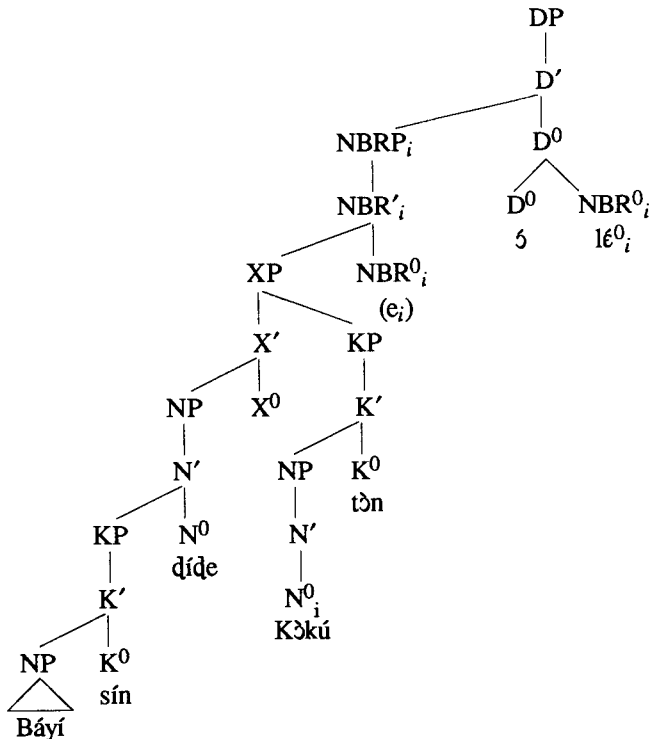


Without an element in SPEC (i.e., the *tòn* phrase), the category NBR projects only to NBR'; there is no NBRP in the structure. Following Chomsky (1986a), we may assume that an XP can only be adjoined to another maximal projection (i.e., a YP). Adjunction of PP or CP or AP would thus be impossible since there would be no NBRP to provide a site for adjunction of a maximal projection.

On the other hand, it is possible to suppose that the nominal phrase in Fongbe may include three distinct functional category projections (i.e., XP, DP, and NBRP, as we have assumed in the discussion in previous sections). But, contrary to our previous assumption, we may suppose that at D-structure, the determiner phrase dominates the number phrase (rather than vice versa) and that the head of the latter undergoes head movement. The S-structure with such a derivation is illustrated below.

- 49a. **Báyí sín díǵe Kòkú tòn ɔ lé**
 Bayi CASE sketch Koku CASE DET NBR
 '(the) Koku's sketches of Bayi'

b.



If this is indeed the pertinent structure, then what was supposed in previous sections to be adjunction to NBRP is actually adjunction to DP. The position which was assumed to be

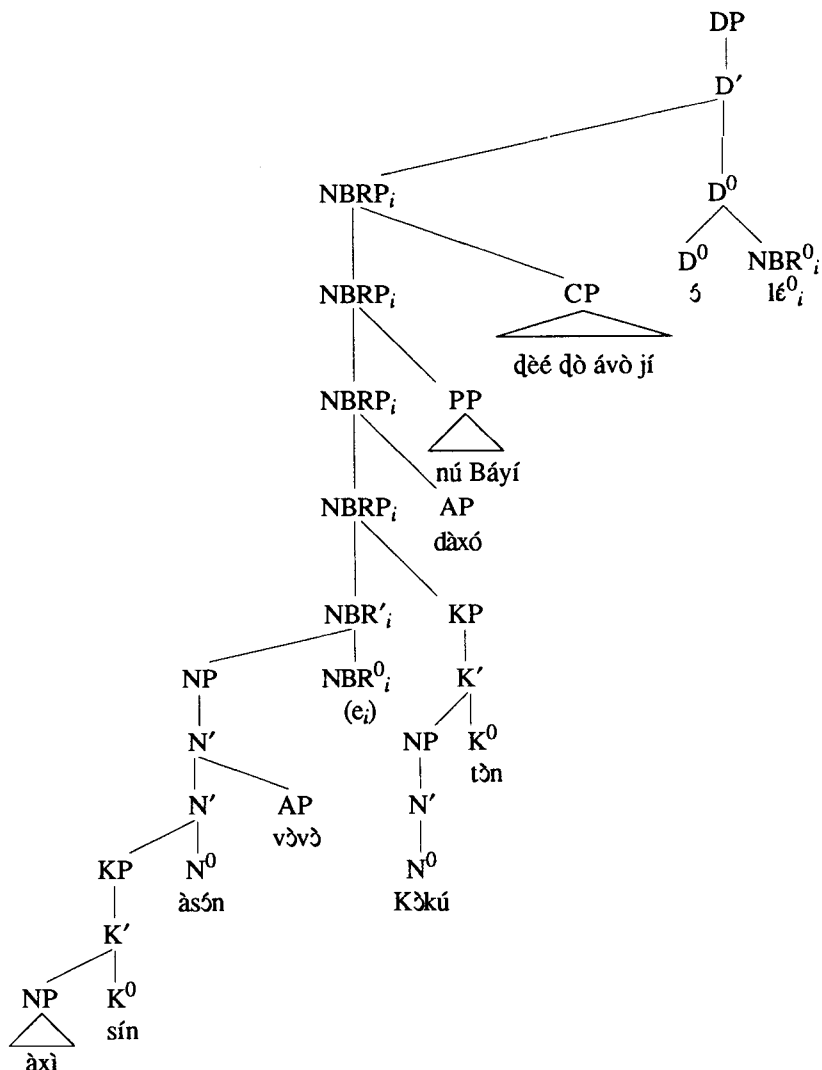
adjunction to XP may be either adjunction to XP or adjunction to NBRP (that is, the structure is ambiguous).

Further research must decide which of these accounts of the obligatory adjacency of the determiner and the number marker is preferable. Without prejudice to this pending decision, we will use the structure of the first of these possibilities in the diagram below (where the argument with *tɔ̀n* appears in the specifier of the NBR phrase).

The complete structure of nominal phrases of Fongbe is as follows. Recall that in this structure, iteration of arguments and modifiers is possible at the N' level, and iteration of adjuncts is possible at the XP and NBRP levels.

- 50a. [àxì sín] àsón vɔ̀vɔ̀ [Kɔ̀kú tɔ̀n] dàxó [nú Báyí] [dèé dò
 market CASE crab red Koku CASE big for Bayi that be at
 távò jí] 5 lé
 table on DET NBR
 '(the) Koku's big red crabs of the market for Bayi that are on the table'

b.



4. CONCLUSION

Our discussion has presented a description of the elements and structure of the nominal phrase in Fongbe. We have seen that, aside from the parameter of directionality, this phrase is remarkably parallel to the nominal phrase of English. There are two ways to realize arguments of the noun. The position to the left of the head noun (where arguments are realized with the Case marker *sín*) may be iterated and the order of the arguments in this position obeys a strict thematic hierarchy. There is a unique position to the right of the head (the *tɔ̀n* position) which may realize any thematic role as long as it is higher on the thematic hierarchy than any argument realized with *sín* in that nominal phrase. We have argued that the *tɔ̀n* position is assigned structural Case, while the *sín* position is assigned an inherent Case and this Case distinction accounts for various constraints on the distribution of arguments in these positions.

Adjectives may be realized within NP to the right of the head noun or adjoined to the right of a functional category which follows the head noun and precedes the determiner. This latter position is also available for PPs and for relative clauses, although both of these elements may also appear adjoined to the determiner phrase.

The discussion points out that there is an unexplained gap in the distribution of these adjoined elements in that they never appear between the determiner and the plural marker. We have suggested two possible solutions to this problem.

Because the directionality of the Fongbe nominal phrase is the reverse of some better studied languages (eg. English), our analysis has brought forth two aspects of these structures which are not otherwise obvious. First, since functional categories precede the head and adjuncts like PPs and relative clauses follow the head in languages like English, the position of adjuncts in the hierarchy of the nominal structure is obscure. In Fongbe, one may see clearly that adjuncts must be adjoined to functional categories rather than to the lexical category (i.e., NP). Second, in Fongbe it is clear that the argument which appears in the specifier of a functional category projection must be higher on the thematic hierarchy than any other argument in the same nominal phrase.

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